

## CHAPTER TEN

## WHEELS, HUBS AND TIRES



This chapter describes repair and maintenance of the front and rear wheels, hubs and tires.

When inspecting components, compare any measurements to the tire and wheel specifications in **Table 1**. Replace any part that is damaged or out of specification. Tighten all wheel and hub fasteners to the specifications in **Table 2**. **Table 1** and **Table 2** are at the end of this chapter.

## FRONT WHEEL

## Removal/Installation

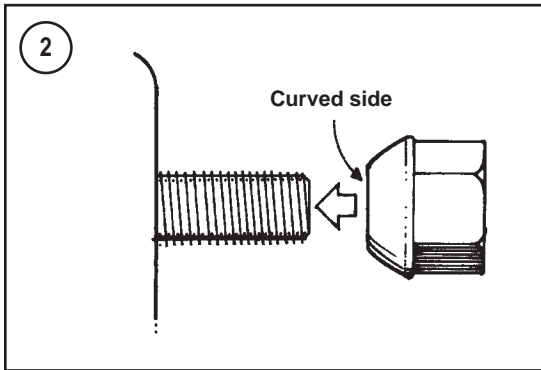
1. Park the vehicle on level ground and set the parking brake.

## NOTE

*Mark the tires for location and direction before removing them.*

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2. Loosen the four front wheel nuts (**Figure 1**).
3. Raise the front of the vehicle with a jack so the front wheels are off the ground. Support the vehicle with safety stands or wooden blocks in the event the jack fails. Make sure the stands are properly placed before beginning work.
4. Remove the wheel nuts and pull the front wheel off the hub.
5. Clean the wheel nuts in solvent and dry them thoroughly. Inspect the nuts, and replace them if necessary.
6. Inspect the wheel. Replace it if it is damaged.
7. Install the front wheel by reversing these removal steps. Note the following:
  - a. Install each wheel nut with its curved side facing toward the wheel (**Figure 2**). Finger-tighten the wheel nuts, and check that the wheel sits squarely against the hub.
  - b. Lower the vehicle so both front wheels are on the ground.
  - c. Tighten the wheel nuts in a crisscross pattern to 64 N•m (47 ft.-lb.).
  - d. Support the vehicle again so both front wheels are off the ground.



- e. Rotate the wheels and apply the front brake. Repeat this step several times to make sure each wheel rotates freely and that its brake is working properly.

## FRONT HUB

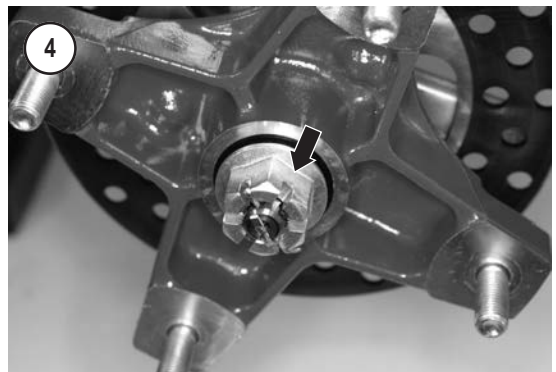
### Removal/Installation

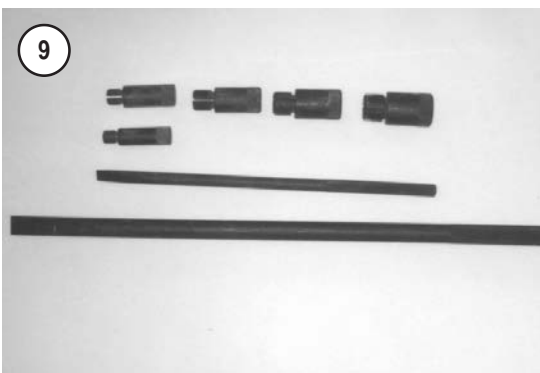
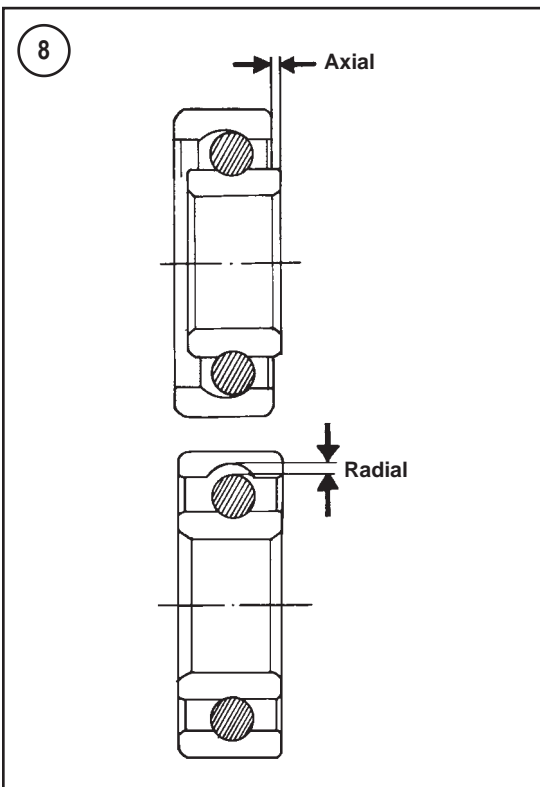
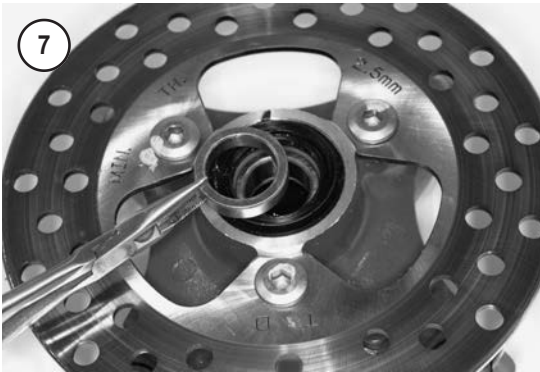
1. Remove the front wheel as described in this chapter.

#### CAUTION

*Do not allow the caliper to hang by the brake hose. Tape or wire the caliper to another location on the frame.*

2. Remove the brake caliper as described in Chapter Twelve.
3. Remove the retaining bolts and disc guard (**Figure 3**).
4. Remove the cotter pin and hub nut (**Figure 4**).
5. Remove the hub and brake disc (**Figure 5**) from the axle.
6. If necessary, remove the brake disc as described in the Chapter Twelve.
7. Inspect and repair the front hub as described in this section.
8. Reverse these steps to install the front hub and perform the following:
  - a. Inspect the steering knuckle (**Figure 6**) condition before installing the hub. Check for cracks and damage on bearing surfaces and threads. Repair or replace if necessary.
  - b. Tighten the hub nut to 69 N•m (51 ft.-lb.). After tightening the nut, continue turning it until the nut is aligned with the cotter pin hole. Do not loosen the nut to align the cotter pin hole.





- c. Install a *new* cotter pin.

### Inspection

1. Remove the collars (**Figure 7**) from both sides of the hub.
2. Inspect the seals for damage.
3. Turn each bearing inner race by hand. The bearing should operate smoothly and quietly. If binding or roughness is detected, replace both bearings.
4. Check each bearing for axial and radial play (**Figure 8**). If play does not exist or is barely noticeable, the bearing is still in usable condition. Replace both bearings if either has excessive play.
5. Check the tightness of the bearings in the hub. Replace the bearings if they feel loose.
6. Install the collars if the bearings and seals are in good condition. Leave the collars out if replacing the bearings and/or seals.

### Bearing and Seal Replacement

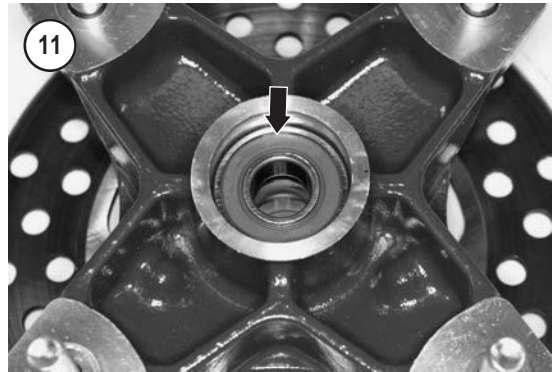
The difficulty in bearing removal is getting the first bearing out of the hub. In the following procedure, two methods are given for removing the first bearing.

The first method uses special tools, while the second method (Step 2B) uses common shop tools.

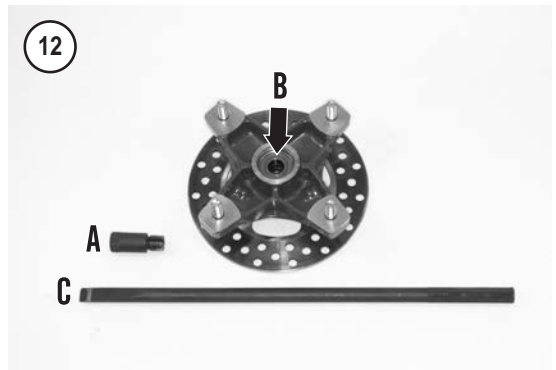
The tools shown in the procedure are part of the Kowa Seiki Wheel Bearing remover set (**Figure 9**). The set is distributed by K&L Supply Co., Santa Clara, CA. The set is designed so a properly-sized remover head can be wedged against the inner bearing race. The bearing can then be driven from the hub.

A similar set can be ordered from Honda dealership. The parts required are the: bearing remover shaft (part No. 07746-0050100) and bearing remover head, 15mm (part No. 07746-0050400).

1. Pry out the seals from both sides of the hub (**Figure 10**). Protect the hub and disc as shown.
- 2A. Remove the hub side bearing (**Figure 11**) using special tools as follows:
  - a. Select the appropriate-size remover head (A, **Figure 12**). The small split end of the remover shaft must fit inside the bearing race (B, **Figure 12**).
  - b. Insert the small end of the remover head into the outer bearing (**Figure 13**).

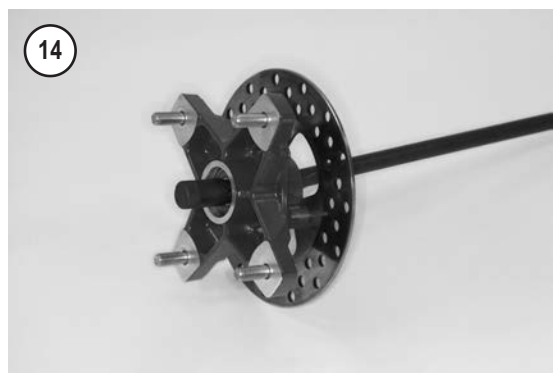
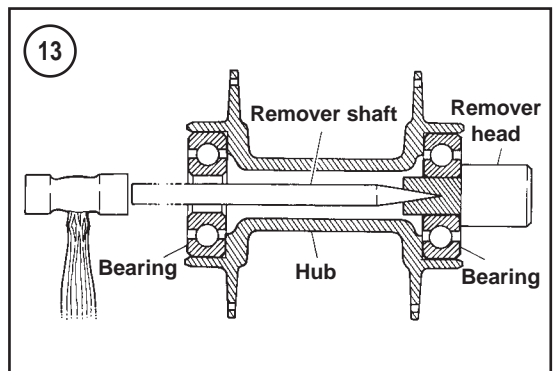


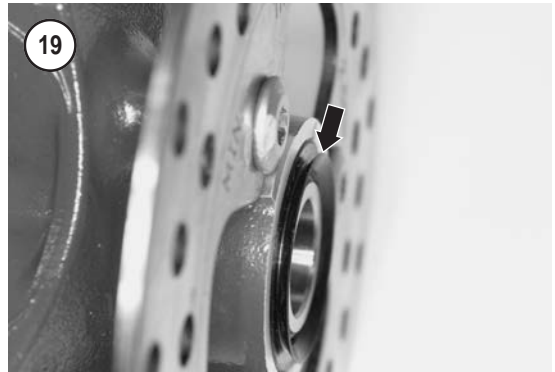
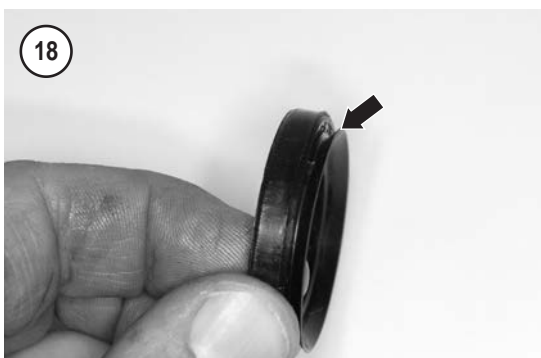
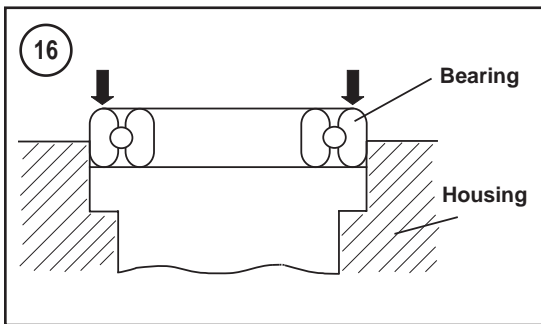
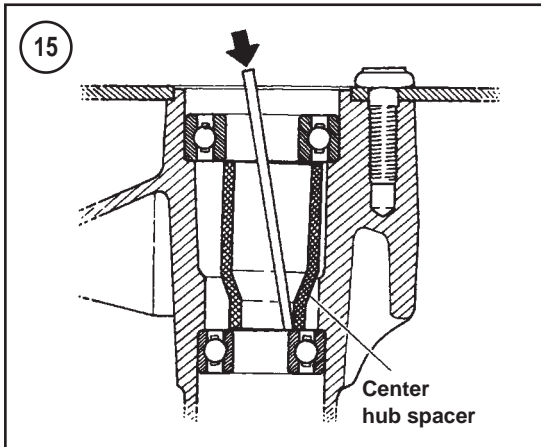
- c. Insert the tapered end of the driver (C, **Figure 12**) through the back side of the hub (**Figure 13**). Fit the tapered end into the slot of the remover head.
- d. Position the hub so the remover head is against a solid surface, such as a concrete floor.
- e. Strike the end of the driver so it wedges firmly in the remover head. The remover head should now be jammed tight against the inner bearing race.
- f. Reposition the assembly (**Figure 14**) so the remover head is free to move and the driver can be struck again.
- g. Strike the driver, forcing the bearing and remover head from the hub.
- h. Remove the driver from the remover head.
- i. Remove the spacer from the hub, noting the direction that it is installed.



2B. To remove the outer bearing from the hub with out special tools:

- a. Insert a long driver into the hub from the brake side (**Figure 15**).
  - b. Carefully wedge the spacer to one side so the edge of the bearing race is exposed.
  - c. Tap the bearing out of the hub, working around the race. Work slowly to avoid damaging the smooth surface of the spacer.
  - d. Remove the spacer from the hub.
3. Drive the inner bearing on the brake side with a bearing driver or a large socket.
  4. Clean and dry the hub and spacer.
  5. Before installing the new bearings and seals, note the following:
    - a. Inspect the new bearings and determine which side faces out. This is usually the side with the manufacturer's marks and numbers.





If a shield is on one side of the bearing, the shield should face out.

- b. Apply grease (NLGI #2) to bearings that are not lubricated by the manufacturer. Work the grease into the cavities between the balls and races.
  - c. Always support the bottom side of the hub, near the bore, when installing bearings.
6. Place the outer bearing *squarely* over the bearing bore.
  7. Place a suitably-sized driver or socket over the bearing. The driver should seat against the outside diameter of the bearing (**Figure 16**).

#### CAUTION

*Do not press or strike the bearing directly. Bearing damage occurs.*

8. Drive the inner bearing into place, seating it in the hub (**Figure 17**).
9. Turn the hub over and install the spacer so the small diameter is next to the outer bearing.
10. Place the inner bearing *squarely* over the bearing bore. Make sure the manufacturer's marks face up. Drive in the bearing, seating it in the hub.
11. Install the seals as follows:
  - a. Pack grease into the inner lips of the new seals.
  - b. Lubricate the seal bores.
  - c. Place a seal *squarely* over the bore.

#### NOTE

*The inner seal (brake side) has an outer lip (**Figure 18**).*

#### NOTE

*When installed in the hub, the inner seal lip is above the edge of the hub (**Figure 19**).*

- d. Press the seal into place by hand (**Figure 20**).



12. Install the collars on both sides of the hub (**Figure 21**).

## REAR WHEEL

Refer to **Figure 22**.

### Removal/Installation

1. Park the vehicle on level ground and set the parking brake. Block the front wheels so the vehicle cannot roll in either direction.

#### WARNING

*The tread pattern is directional on the rear tires. The V-pattern in the tire tread must point in the direction of the wheel's forward rotation. Each rear wheel must be installed on the correct side of the vehicle. Mark each wheel before removing it to make sure it gets installed on the correct side.*

2. Identify the rear tires with an L (left side) or R (right side) mark. Refer to these marks to install the wheels on their correct sides.

3. Loosen the wheel nuts (**Figure 23**) securing the wheel to the hub.

4. Raise the rear of the vehicle so the rear wheels are off the ground. Support the vehicle with safety stands or wooden blocks in the event the jack fails. Make sure the stands are properly placed before beginning work.

5. Remove the wheel nuts and rear wheel.

6. Clean the wheel nuts in solvent and dry them thoroughly. Inspect the nuts, and replace them as necessary.

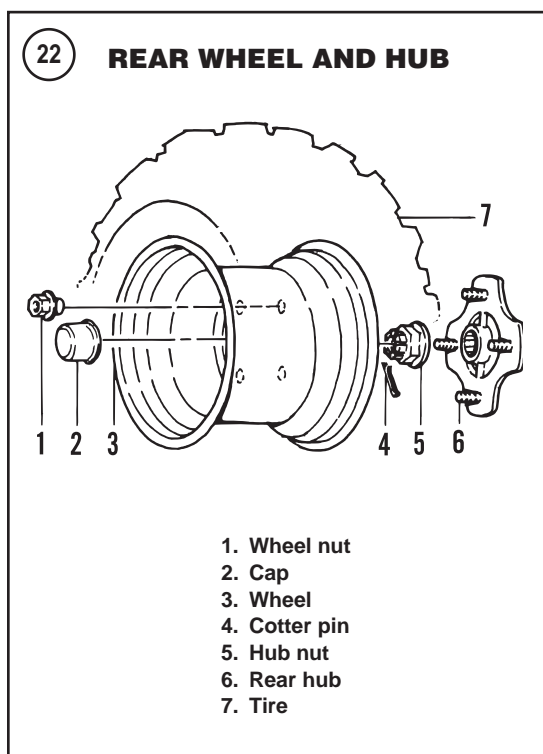
7. Inspect the wheel for cracks, bending or other damage. If necessary, replace the wheel.

8A. If reinstalling a wheel, reinstall it onto its original side.

8B. If installing a rear wheel with new original equipment tires, install the wheel so the V-pattern in the tire tread points in the direction of the wheel's forward rotation.

9. Install the wheel nuts with their curved end (**Figure 3**) facing toward the wheel. Finger-tighten the nuts to center the wheel squarely against the hub.

10. Lower the vehicle so both rear wheels are on the ground.





11. Tighten the wheel nuts (**Figure 23**) in a criss-cross pattern to 64 N•m (47 ft.-lb.).

12. Support the vehicle again so both rear wheels are off the ground.

13. Rotate the wheels and apply the rear brake. Repeat this step several times to make sure wheels rotate freely and the brake is working properly.

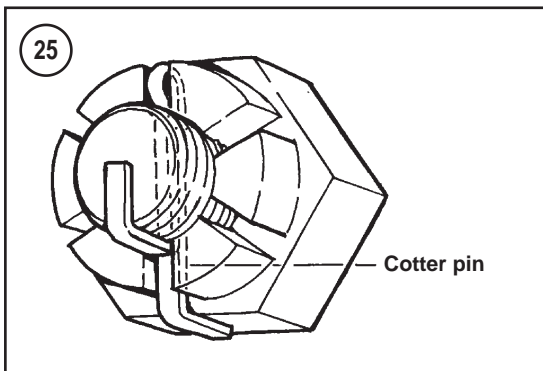
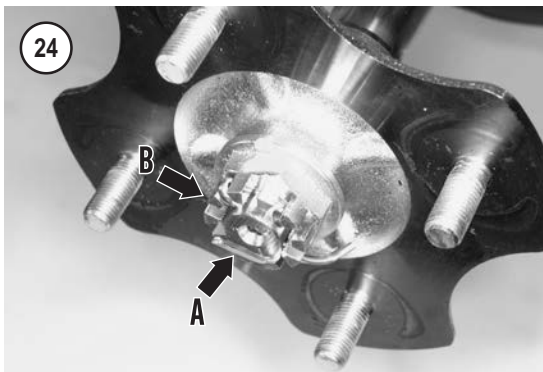
## REAR HUB

Refer to **Figure 22**.

### Removal/Installation

1. Remove the rear wheel as described in this chapter.
2. Remove and discard the hub nut cotter pin (**A**, **Figure 24**).
3. Remove the hub nut (**B**, **Figure 24**), and pull the rear hub off the axle.
4. Inspect the rear hub as described in this section.
5. To install the rear hub, reverse these removal steps and perform the following:
  - a. Apply molybdenum disulfide grease to the axle splines.
  - b. Tighten the hub nut (**B**, **Figure 24**) to 147 N•m (108 ft.-lb.). If necessary, tighten the hub nut to align it with the cotter pin hole in the axle. Do not loosen the hub nut to align it with the hole.
  - c. Install a *new* cotter pin, and bend the ends over completely as shown in **Figure 25**.

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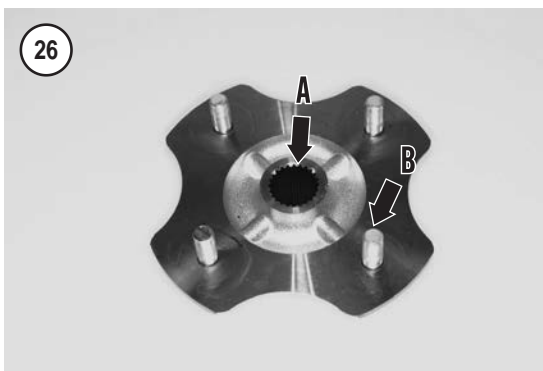


### Inspection

1. Inspect the hub inner splines (**A**, **Figure 26**) for wear or damage. Replace the hub if necessary.
2. Inspect the wheel studs (**B**, **Figure 26**). Replace a damaged stud.
3. Check the hub for cracks or other damage.

## TIRES

TRX250EX models are equipped with tubeless, low pressure tires designed specifically for off-road use. Rapid tire wear occurs if it is driven on paved surfaces.



## Tire Replacement

A bead breaker, tire irons and rim protectors are needed to change the tires.

### CAUTION

*If the tire is difficult to remove or install, do not take a chance on damaging the tire or rim sealing surface. Take the tire and rim to a dealership for service.*

1. Remove the valve stem cap and core, and deflate the tire. Do not reinstall the core at this time.

### WARNING

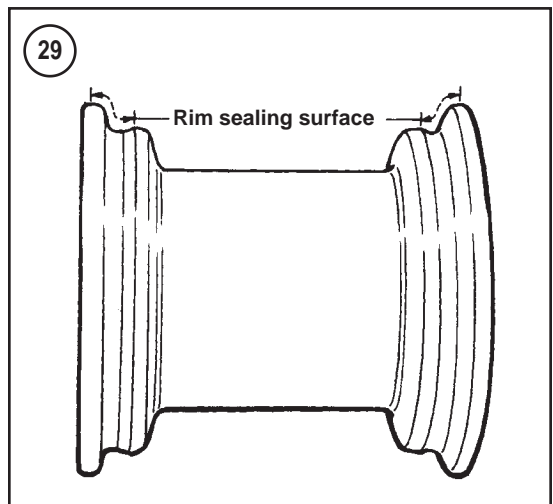
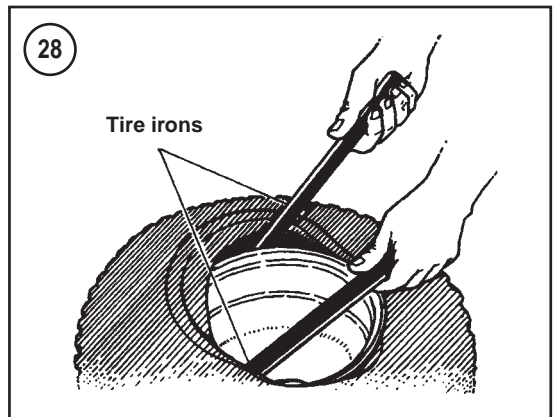
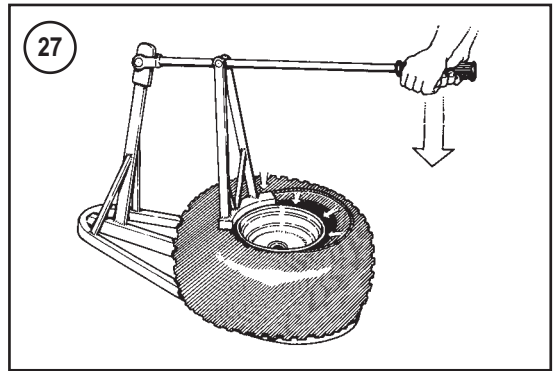
*Only use water to lubricate the tire during removal and installation. Soap or other types of tire lubricants can leave a residue, which can lead to tire slip, rapid pressure loss and a possible accident.*

2. Lubricate the tire bead and rim flanges with water. Press the tire sidewall/bead down so the water can run into and around the bead area. Also apply water to the area where the bead breaker arm contacts the tire sidewall.
3. Position the wheel into the bead breaker tool (**Figure 27**).
4. Slowly work the bead breaker tool, making sure the tool arm seats against the inside of the rim, and break the tire bead away from the rim.
5. Using your hands, press the tire on either side of the tool to break the rest of the bead free from the rim.
6. If the rest of the tire bead cannot be broken loose, raise the tool, rotate the tire/rim assembly and repeat Step 4 and Step 5 until the entire bead is broken loose from the rim.
7. Turn the wheel over and repeat the preceding steps to break the bead on the opposite side of the rim.

### CAUTION

*When using tire irons, work carefully so the tire or rim sealing surfaces are not damaged. Any damage to these areas may cause an air leak and require replacement of the tire or rim.*

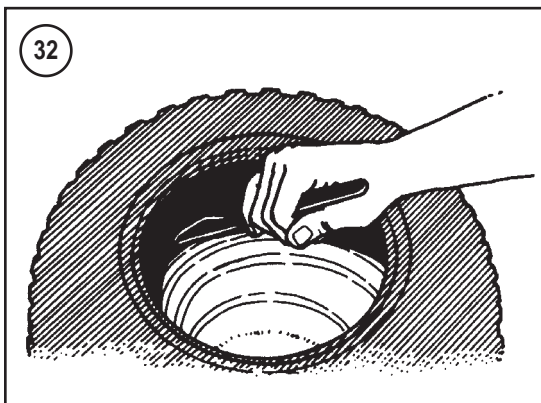
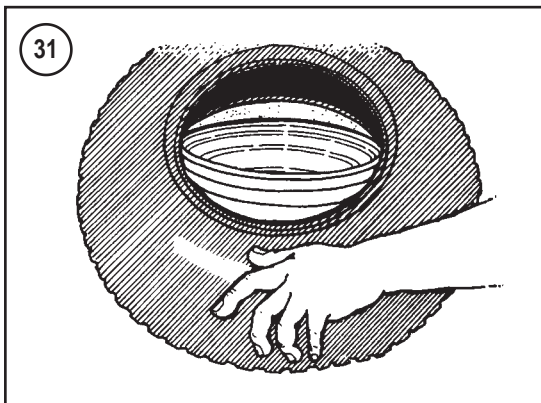
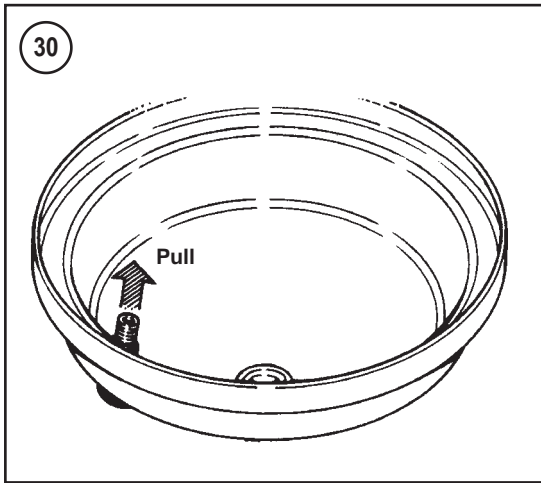
8. Lubricate the tire beads and rim flanges as described in Step 2. Pry the bead over the rim with two tire irons (**Figure 28**). Work with small sections of



the tire and place rim protectors between the tire irons and the rim.

9. When the upper tire bead is free, lift the second bead up into the center rim well. Remove the second bead from the rim as described in Step 8.
10. Clean and dry the rim.





11. Inspect the sealing surface on both sides of the rim (**Figure 29**). If the wheel is bent, it may leak air.

12. To replace the valve stem, perform the following:

- a. Support the rim and pull the valve stem out of the rim. Discard the valve stem.

- b. Lubricate the new valve stem with water.
- c. Pull a new valve stem into the rim, from the inside out, until it snaps into place (**Figure 30**).

13. Inspect the tire for cuts, tears, abrasions or any other defects.

#### WARNING

*Only use only clean water as a lubricant during tire mounting. Soap or other tire lubricants can leave a residue, which could cause the tire to slip on the rim and lose air pressure during operation.*

14. Clean the tire and rim of any lubricant used during removal.

#### NOTE

*The tread pattern is directional on the rear tires. Position the tire onto the rim so the chevron on the tire tread points in the direction of rear wheel's forward rotation.*

#### NOTE

*If the tire is difficult to install, place the tire outside in the sun (or in the trunk of a car). The higher temperatures soften the tire and help ease installation.*

15. Install the tire onto the rim from the side with the narrower rim shoulder. If this cannot be determined, start with the side opposite the valve stem. Push the first bead over the rim flange. Force the bead into the center of the rim to help installation (**Figure 31**).

16. Install the rest of the bead with tire irons (**Figure 32**).

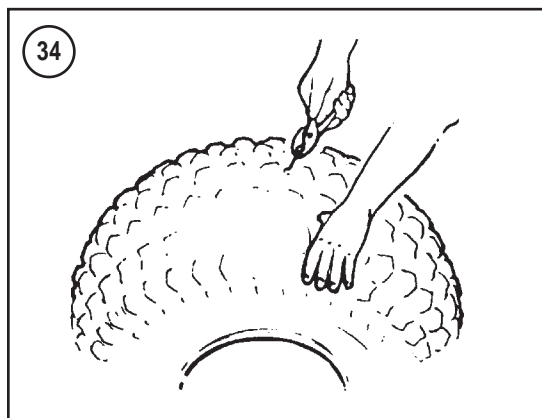
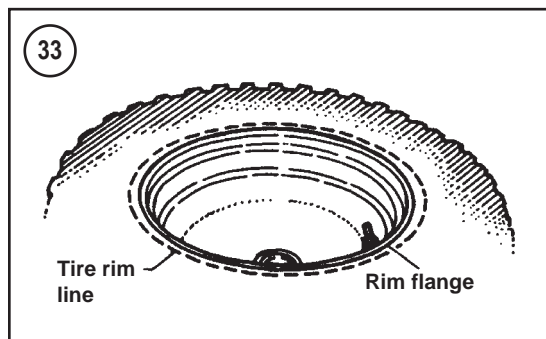
17. Repeat the preceding steps to install the second bead onto the rim.

18. Install the valve stem core, if necessary.

19. Apply water to the tire bead and inflate the tire to seat the tire onto the rim. Check that the rim lines on both sides of the tire are parallel with the rim flanges as shown in **Figure 33**. If the rim flanges are not parallel, deflate the tire and break the bead. Lubricate the tire with water again and reinflate the tire.

20. When the tire is properly seated, deflate the tire and wait 1 hour before putting the tire into service. After 1 hour, inflate the tire to the standard inflation pressure in **Table 1**.

21. Check for air leaks and install the valve cap.



### Cold Patch Repair

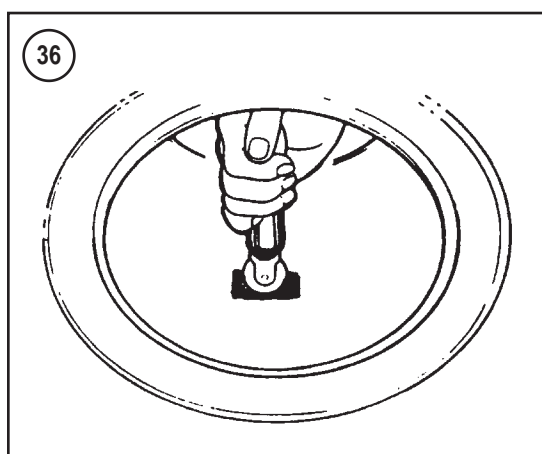
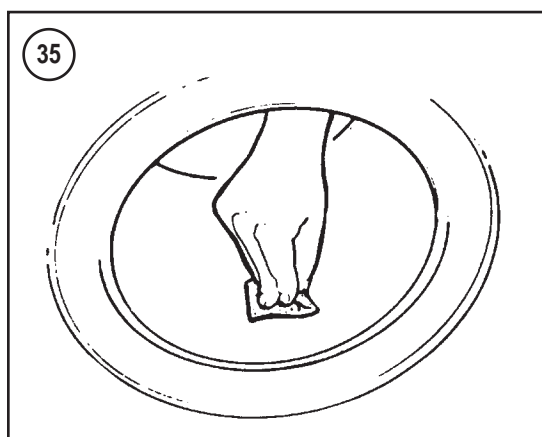
Use the manufacturer's instructions for the tire repair kit being used. If there are no instructions, use the following procedure.

1. Remove the tire as described in this chapter.
2. Before removing the object that punctured the tire, mark the puncture location with chalk or a crayon. Remove the object (**Figure 34**).
3. Working on the inside of the tire, roughen an area around the hole that is larger than the patch (**Figure 35**). Use the cap from the tire repair kit or a pocket knife. Do not scrape too vigorously or additional damage may occur.
4. Clean the area with a non-flammable solvent. Do not use an oil base solvent. It leaves a residue, rendering the patch useless.
5. Apply a small amount of special cement to the puncture and spread it evenly.
6. Allow the cement to dry until tacky—usually 30 seconds or so.

#### CAUTION

*Do not touch the newly exposed rubber with your fingers or the patch does not stick firmly.*

7. Remove the backing from the patch.
8. Center the patch over the hole. Hold the patch firmly in place for about 30 seconds to allow the cement to dry. Use a roller, if available, to press the patch into place (**Figure 36**).
9. Dust the area with talcum powder.



**Table 1 TIRE AND WHEEL SPECIFICATIONS**

<b>Front tire</b>	
Size	AT22 × 7-10
Manufacturer	Dunlop KT 171
Minimum tread depth	4 mm (0.16 in.)
<b>Rear tire</b>	
Size	AT22 × 10-9
Manufacturer	Dunlop KT 175
Minimum tread depth	4 mm (0.16 in.)
<b>Inflation pressure (cold)*</b>	
<b>Standard</b>	
Front	30 kPa (4.4 psi)
Rear	20 kPa (2.9 psi)
<b>Minimum (front and rear)</b>	
Front	26 kPa (3.8 psi)
Rear	17 kPa (2.5 psi)
<b>Maximum (front and rear)</b>	
Front	34 kPa (5.0 psi)
Rear	23 kPa (3.3 psi)
<b>With cargo (front and rear)</b>	
Front	30 kPa (4.4 psi)
Rear	20 kPa (2.9 psi)
<b>Wheel size</b>	
Front	10 × 5.5 AT
Rear	9 × 8.0 AT
*Tire inflation pressure for original equipment tires. Aftermarket tires may require different inflation pressures.	

**Table 2 WHEEL AND HUB TORQUE SPECIFICATIONS**

<b>Item</b>	<b>N•m</b>	<b>in.-lb.</b>	<b>ft.-lb.</b>
Front hub nut	69	–	51
Rear hub nut	147	–	108
Wheel nuts	64	–	47

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